Medical Xpress

Research highlights risk of Lyme disease

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You don't have to be deep in the backwoods to be at high risk for Lyme disease. The Centers for Disease Control and Prevention projects that about 300,000 people are infected with Lyme disease each year, yet only 30,000 incidences are reported.

The disease spreads from a pathogen—a bacterium called Borrelia burgdorferi—to a blacklegged tick, Ixodes scapularis, also known as the "deer tick." Ticks are in the nymphal stage of their life cycle during the late spring and summer, the stage in which they are most likely to infect humans with Lyme disease.

Rani Schoenhaus, a junior at Binghamton University, spent last summer alongside three other students collecting and testing ticks from the Susquehanna River Basin area, a nearby six-county region. "Dragging" is the process of pulling material, in this case a 1-square-meter piece of white corduroy, along terrain in order to collect ticks.

"It was a really great experience," says Schoenhaus, a biology major from Slingerlands, NY. "We camped for about half of the week. We would pack into one car and hike all day, dragging different trails in a bunch of state parks and places that have high foot traffic."

The project, which began in 2011, is headed by Ralph Garruto, a professor of anthropology at Binghamton. Garruto's lab aims to find the rate of infected ticks, compile the demographics of people encountered in these areas and spread awareness to improve reporting rates.

"The Susquehanna River Basin area that we have been collecting ticks from has the second highest infectivity of ticks per density of ticks in the entire United States," Schoenhaus says. "The infectivity rates of ticks with Lyme disease is actually the same as in the Hudson Valley, which has the highest infectivity rates in the U.S. They just have more reported cases."

Results show an overall infectivity rate of 34.3 percent, meaning that about one in three ticks encountered in areas with high foot traffic were carrying the bacterium. "We're looking at campus, neighborhood backyards, parks, places where people don't often realize they're at risk," Garruto says.

Schoenhaus works on this project with doctoral student Amanda Roome, senior Zara Shah and sophomore Erik Pecina. They presented their collaborative poster and abstract at the prestigious Human Biology Association conference in April in New Orleans.

"Rani is very committed. She has worked on several teams, specifically our collection team, working more than 20 hours a week over the summer," Garruto says. "All of the students are part of each step of the project, from collection to the DNA analysis."

Schoenhaus' longtime interest in epidemiology—the study of disease states and how they affect different groups of people—and other facets of public health brought her attention to this research. As part of the demographic and behavioral team, she played a critical role in collecting demographic information related to people putting themselves at risk. She looked at behavior such as who was running by, whether their arms and legs were exposed and other factors. Even areas with small green patches revealed a high density of infected ticks.

"This project is so important for public health outreach," says

Schoenhaus, who hopes to attend veterinary school. "Awareness can prevent diseases. I think people would be surprised by the density of ticks in this area first off, but the amount of ticks infected with Lyme disease is even more surprising."

Provided by Binghamton University